a second step of removing a reaction product deposited on the first film through the first step with a second etching gas comprising O and free of F to expose the first film;

a third step of etching the first film exposed through the second step with a third etching gas until the conductive layer is exposed; and

a fourth step of removing a reaction product deposited on the conductive layer through the third step with a fourth etching gas comprising O and being free of F, thereby forming a concave portion penetrating the first and second films to reach the conductive layer surface, so that no F gas is used during removal of the reaction products.

Please add the following new claims:

8. (*New*) The method of claim 1, wherein the conductive layer is a semiconductor substrate.

9. (*New*) A method of manufacturing a semiconductor device, the method comprising:

depositing a first film comprising silicon nitride on a conductive layer, and thereafter depositing a second film comprising silicon oxide over the first film comprising silicon nitride;

etching a desired portion of the second film comprising silicon oxide with a first etching gas to form an aperture in the second film,

using a second etching gas to remove a first reaction product deposited on the first film under said aperture defined in the second film, the first reaction product having been formed due to said etching of the second film;

after removing the first reaction product, using a third etching gas to etch the first film at an area where the first reaction product was removed until the conductive layer is exposed thereby forming an aperture in the first film over an exposed area of the conductive layer;

using a fourth gas to remove a second reaction product deposited on the conductive layer under said aperture defined in the first film, the second reaction product having been formed due to said etching of the first film, thereby forming a concave portion penetrating the first and second films to reach the conductive layer; and

wherein at least one of the second and fourth gases comprises oxygen and is free of F, so that no F gas is used during removal of at least one of the reaction products.

10. (*New*) A method according to claim 9, wherein all of the recited steps are successively carried out in a single apparatus maintaining therein a vacuum state.

11. (*New*) A method according to claim 9, wherein the first etching gas comprises at least one of $CHF_3$, $C_4F_8$ and $C_5F_8$.

12. (*New*) A method according to claim 9, wherein the third etching gas comprises at least one of $CHF_3$ and $CH_2F_2$.

13. (*New*) A method according to claim 9, wherein the etching using the second and fourth gas(es) is carried out under plasma conditions.

14. (*New*) A method according to claim 9, wherein the conductive layer is a semiconductor substrate, and the concave portion is a contact hole.

15. (*New*) A method according to claim 9, wherein the conductive layer is a layered substrate on which an electrode is layered and the concave portion is a via hole.

## REMARKS

This is in response to the Office Action dated April 11, 2003. New claims 8-15 have been added. Thus, claims 1-15 are now pending. Attached hereto is a marked-up version of the changes made to the claim(s) by the current amendment. The attached page(s) is captioned "Version With Markings To Show Changes Made."

For purposes of example, and without limitation, certain example embodiments of this invention relate to a method of making a contact hole (or via) in a multi-layer insulating film. Referring to Figs. 1-2 of the instant application for example, a semiconductor substrate (conductive layer) is provided having a device isolation region 102 and a diffusion layer 103. A first dielectric film (e.g., silicon nitride) 104 is deposited on the substrate, and thereafter second and third dielectric films (e.g., silicon